For effective management of forest resources managers need up-to-date information on areas and yields. In this example high-resolution LiDAR data is used to improve forest mapping and provide estimates of yield. Figure 1 shows a 1:10 000 aerial photograph with GIS forest boundary information overlaid. Figure 2 shows the same area using the LiDAR data. Using various measures derived from the laser pulse distribution it is possible to identify areas of wind damage forest gaps and areas of poor growth with more precision than in the aerial photograph.

The forest boundary information can be improved by using the LiDAR to define new forest boundaries. In this example the t-ratio segmentation developed by SLU is used (Figure 3). The LIDAR-derived height can be used to update yield estimates yield predictions providing a revised forest compartment map (Figure 4).

Mapping forest areas using LiDAR

Figure 1 1:10 000 aerial photograph

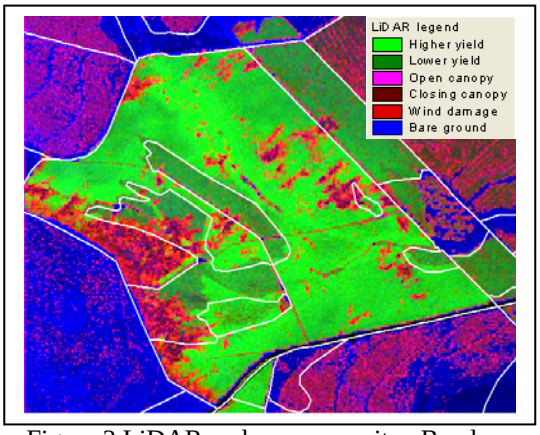

Figure 2 LiDAR colour composite. Bands combination Blue % ground returns G = height, red=CV.

Yield estimates using LiDAR

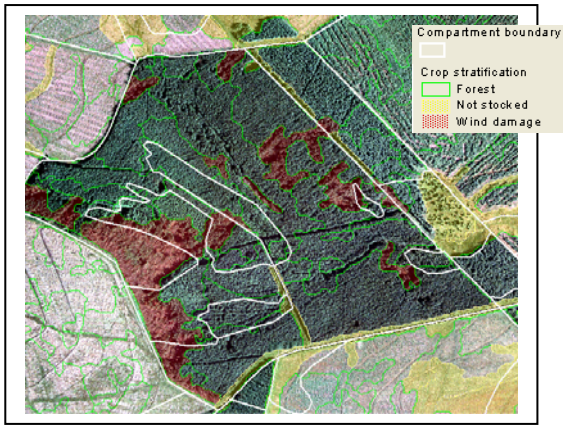

Figure 3. LiDAR image classified to identify wind damage and gaps. New forest boundaries from segmentation.

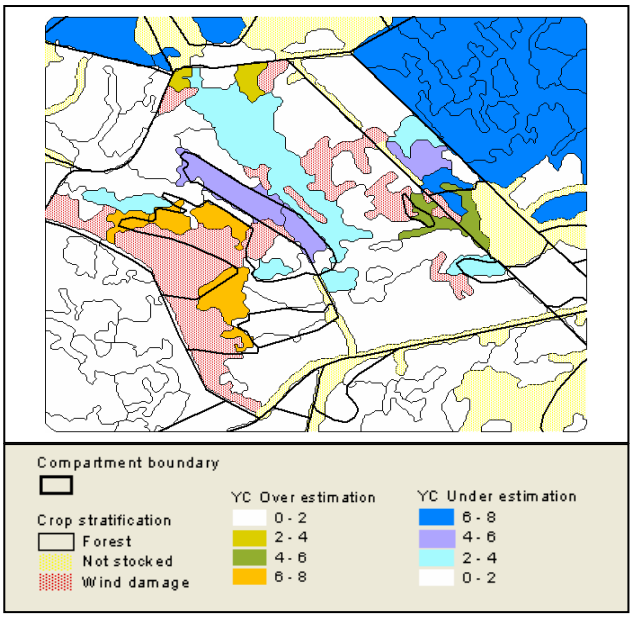

Figure 4. Comparison of LiDAR-derived yield class with current yield class

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